

SPECIFICATION

Atty Dkt: F-9071

Identifier: Erich HARSCH, et al.

Patent claims:

1. Apparatus for transporting workpieces in a press, large-component transfer press, simulator, or the like, whereby each machining station has at least one independent transport apparatus that transports the workpiece and said apparatus is embodied as an articulated arm comprising two articulated arm parts, characterized in that said articulated arm transport apparatus (11 through 14) is arranged above the workpiece transport plane on the press uprights (7 through 10), whereby the articulated arm part (20) that is joined to the transverse cross member (17) is shorter than the articulated arm part (19) and a pivoting movement (48) is performed substantially above the common point of rotation (35), and whereby a lifting and/or pivoting movement can be performed by means of regulatable lift drives (21, 22) mechanically linked to transmission means.
2. Apparatus in accordance with claim 1, characterized in that a lifting movement or lowering movement of the bearing carriage (29) for said articulated arm part (19) occurs by means of two racks (25, 26) arranged parallel to one another that can be driven by at least two stationary drive motors (21, 22) via toothed wheels (23, 24).
3. Apparatus in accordance with claims 1 and 2, characterized in that two racks (25, 26) arranged parallel to one another jointly act on a drive toothed wheel (27) for said articulated arm (19) such that a lifting and lowering movement of a carriage (29) and/or a pivoting movement of an articulated arm borne on said carriage (29) can be adjusted.

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4. Apparatus in accordance with claim 1 through 3, characterized in that said articulated arm part 19 performs a pivoting movement with a pivoting angle 47 that can be regulated in terms of its size and the latter is smaller than the pivoting angle (48) of said articulated arm part (20) by a constant ratio.
5. Apparatus in accordance with claim 1, characterized in that a regulatable drive (36) pivots via transmission means (40 through 44) a transverse crossmember (17) with workpiece holding means (18) about a pivoting axis (38).
6. Apparatus in accordance with claims 1 and 5, characterized in that a regulatable drive (37) changes the attitude of said workpiece holding means (18).